MISSOURI OIL AND GAS COUNCIL

Form OGC - 3

APPLICATION FOR PERMIT TO DRILL, DEEPEN OR PLUG BACK

APPLICATION TO DRILL ☒ DEEPEN ☐ PLUG BACK ☐

NAME OF COMPANY OR OPERATOR DNR- GEOL SURVEY DATE 17 JAN 1977

P.O. Box 250 (Address) ROLLA (City) MO (State)

DESCRIPTION OF WELL AND LEASE

Name of lease	Well number	Elevation (ground)
ERDA TS	13	898

WELL LOCATION (give footage from section lines)
1090 ft. from (S) sec. line 15 ft. from (W) sec. line

WELL LOCATION Section 33 Township 33N Range 33W County BARTON

Nearest distance from proposed location to property or lease line: NA feet

Distance from proposed location to nearest drilling, completed or applied – for well on the same lease: NA feet

Proposed depth:	Rotary or Cable tools	Approx. date work will start
240	~~Rotary~~	

Number of acres in lease: NA

Number of wells on lease, including this well, completed in or drilling to this reservoir: NA

Number of abandoned wells on lease: _____

If lease, purchased with one or more wells drilled, from whom purchased: Name NA Address _____

No. of Wells: producing _____ inactive _____ abandoned _____

Status of Bond

Single Well ☐ Amt. _____ Blanket Bond ☐ Amt. _____ ☐ ON FILE ☐ ATTACHED

Remarks: (If this is an application to deepen or plug back, briefly describe work to be done, giving present producing zone and expected new producing zone) use back of form if needed.

Proposed casing program:

amt.	size	wt./ft.	cem.
	NONE		

Approved casing – To be filled in by State Geologist

amt.	size	wt./ft.	cem.

I, the undersigned, state that I am the _____ of the _____ (company), and that I am authorized by said company to make this report; and that this report was prepared under my supervision and direction and that the facts stated therein are true, correct and complete to the best of my knowledge.

Signature _____

Permit Number: 20015

Approval Date: 17 JAN 1977

Approved By: Wallace B. Howe

☒ SAMPLES REQUIRED

☐ SAMPLES NOT REQUIRED

WATER SAMPLES REQUIRED @: _____

Note: This Permit not transferable to any other person or to any other location.

Remit two copies to: Missouri Oil and Gas Council P.O. Box 250 Rolla, Mo. 65401

One will be returned.

Approval of this permit by the Oil and Gas Council does not constitute endorsement of the geologic merits of the proposed well nor endorsement of the qualifications of the permittee.

MISSOURI OIL AND GAS COUNCIL

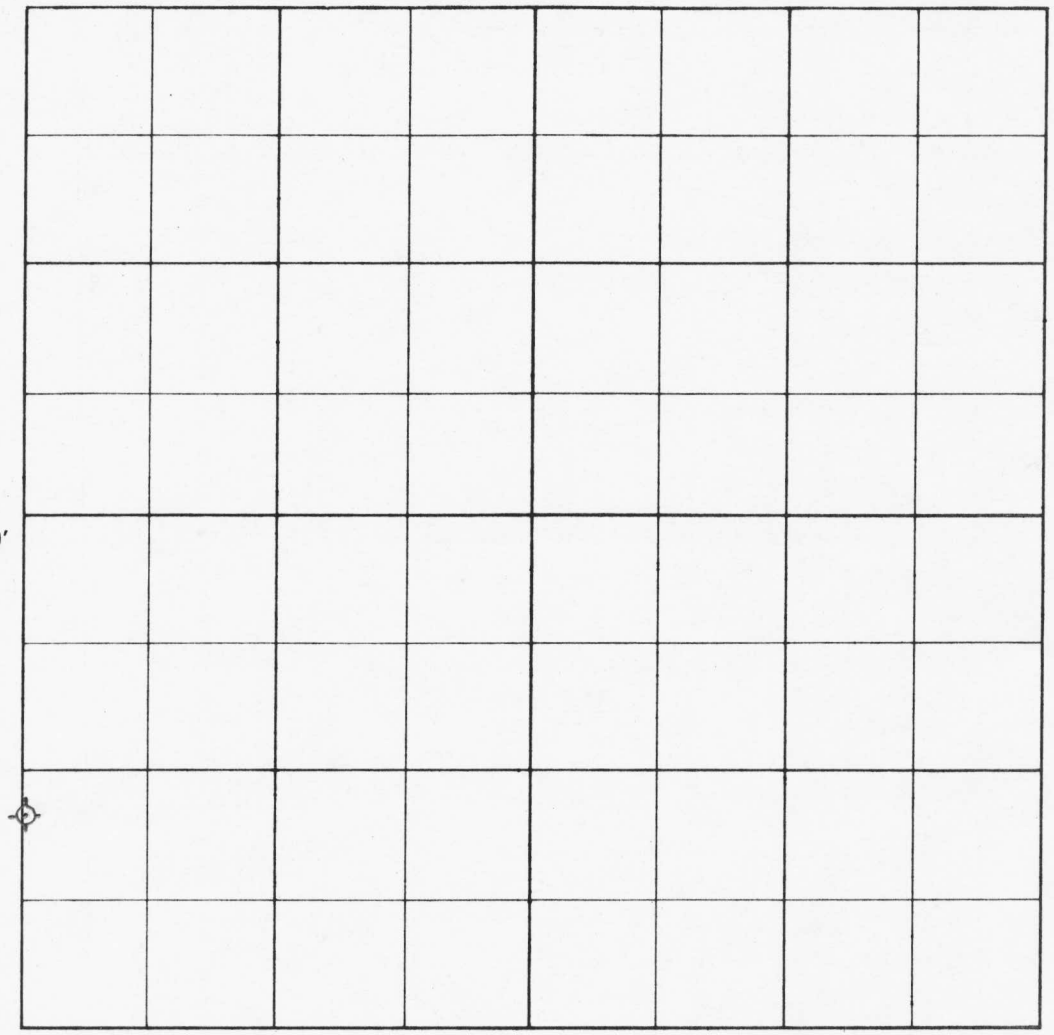
WELL LOCATION PLAT

Form OGC - 4

Owner: DNR - Geol. Survey

Lease Name: ERDA TS # 13 County, BARTON

1090 feet from (N) (S) line and 15 feet from (E) (W) line of Sec. 33 Twp. 33N Range 33W



SCALE
1" = 1000'

REMARKS: loc: Liberal, Mo., 2½ mi W & 1/4 mi N of along E side of N-3 gravel rd., 1090 ft N & 15' W of ¢ of x rd

INSTRUCTIONS

On the above plat, show distance of the proposed well from the two nearest lease and section lines, and from the nearest well on the same lease completed in or drilling to the same reservoir. If the location requested is not in conformance with the applicable well-spacing rules, show all off-setting wells to the proposed well. Do not confuse survey lines with lease lines. See rule 7 - 3 (b) for survey requirements.

(SEAL)

Remit two copies to: Missouri Oil and Gas Council
P.O. Box 250 Rolla, Mo. 65401
One will be returned.

Registered Land Surveyor

TEST BORING LOG

Project E.R.D.A. T.S. Boring No. 13 Sheet 1 of 2

D.N.R Geological Survey Surface Elevation _____ Offset _____

Address Barton County Date Started 1/25/77 Completed 2/2/77

City & State Rolla, Missouri Driller J. Wright Rig 250 ATV

Abbreviations: A.O. – Auger Only R.B. – Rock Bit C.W. – Core Water
H.A. – Hollow Auger S.S. – Split Spoon C.A. – Core Air
W.B. – Wash Bore S.T. – Shelby Tube F.B. – Finger Bit

Sec. 33, T. 33N., R. 33W.

DEPTH FROM	DEPTH TO	METHOD	PENETRATION RECORD: POCKET PENETROMETER	PENETRATION RECORD: NO. OF BLOWS	CORE RECOVERY	SAMPLE DESCRIPTION: COLOR–MATERIAL–MOISTURE–CLAY CONSISTENCY SAND DENSITY
0.0'	10.0'	WB				Soil, sand, silt
10.0'	20.0'	CW1			3.8	Sahle
20.0'	30.0'	Cw2			10	Shale, sand
30.0'	40.0'	CW3			10	Sand lime
40.0'	50.0'	CW4			4	Shale, dark gray, laminated
50.0'	60.0'	CW5			10	Shale, dark gray, laminated
60.0'	70.0'	CW6			4	Shale, dark gray, laminated
70.0'	75.0'	CW7			10	Shale sandstone
75.0'	80.0'	CW8			10	Same
80.0'	90.0'	CW9			8.3	Shale, sandy
90.0'	100 0'	CW10			10	Shale-sandy w/coal streaks
100.0'	110.'0	CW11			10	Shale, sandy
110.0'	120.0'	CW12			8.7	Same
120.0'	130.0'	CW13			3.1	Shale, dary gray laminated
130.0'	140.0'	CW14			3.7	Shale, sandy
140.0'	150.0'	CW15			5.7	Sandstone

REMARKS: (Casing, Water Loss, Etc.) Water Level Time Date

_____ _____ _____ _____ (Completion)

_____ _____ _____ _____

Layne-Western Company, Inc.

LW-59A

TEST BORING LOG

Project E.R.D.A. T.S. Boring No. 13 Sheet 2 of 2

D.N.R. Geological Survey Surface Elevation _____ Offset _____

Address Barton County Date Started 1/25/77 Completed 2/2/77

City & State Rolla, Missouri Driller J. Wright Rig _____

Abbreviations: A.O. – Auger Only; H.A. – Hollow Auger; W.B. – Wash Bore; R.B. – Rock Bit; S.S. – Split Spoon; S.T. – Shelby Tube; C.W. – Core Water; C.A. – Core Air; F.B. – Finger Bit

DEPTH FROM	DEPTH TO	METHOD	PENETRATION RECORD: POCKET PENETRO-METER	PENETRATION RECORD: NO. OF BLOWS	CORE RECOVERY	SAMPLE DESCRIPTION: COLOR–MATERIAL–MOISTURE–CLAY CONSISTENCY SAND DENSITY
150.0'	160.0'	CW17			10	Sandstone
160.0'	170.0'	CW18			10	Same
170.0'	180.0'	CW19			10	Sand and shale
180.0'	190.0'	CW20			10	Same
190.0'	200.0'	CW21			10	Same
200.0'	21.0'	CW22			10	Same
210.o'	220.0'	CW23			1	Same
220.0'	230.0'	CW24			3"	Sand and shale, chert
230.0'	240.0'	CW25			2'	Shale, chert
240.0'	Total depth					

REMARKS: (Casing, Water Loss, Etc.) Water Level Time Date

_____ _____ _____ _____ (Completion)

_____ _____ _____ _____

Layne-Western Company, Inc.

LW-59A

QUADRANGLE: Liberal

ERDA-TS core hole 13
COUNTY: Barton

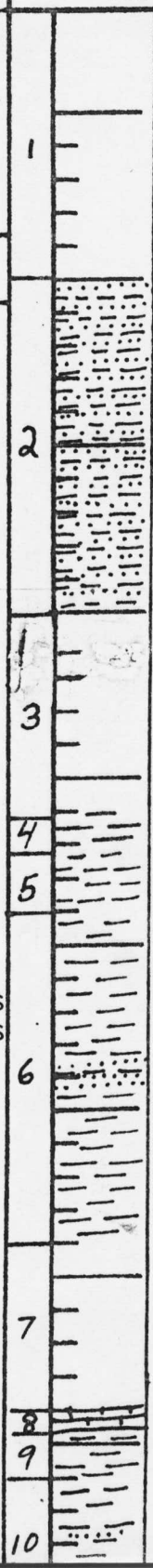
LOCATION: SW1/4 SW1/4 SEC. 33 T. 33N R. 33W

DATE: Jan. 24 to Feb. 7, 197

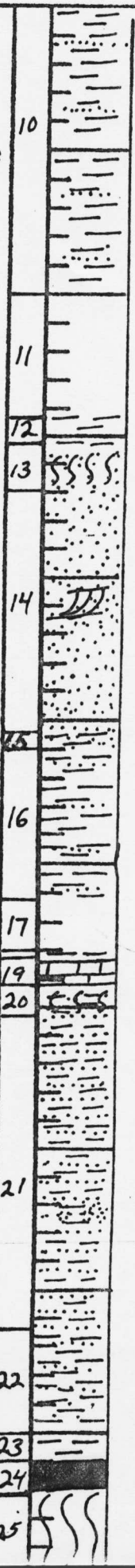
LOCATION DESCRIPTION: 1090' FSL and 15' FWL. 2-1/2 miles west and 1/4 mile north of Liberal, Mo. along east side of N-S gravel road

surface elev. 898.0 topo.; T.D. 240.0 ft.

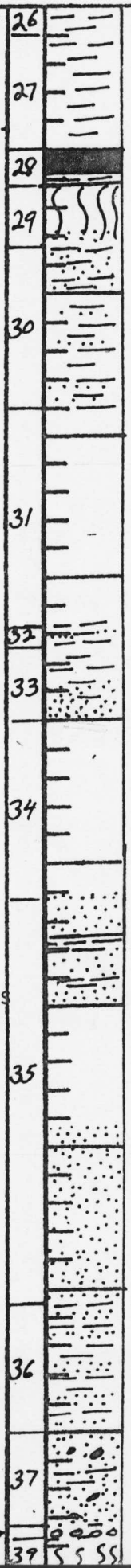
DEPTH (FEET)		BED NO.	LITHOLOGY
0.0	10.0	1	No core.
10.0	20.0	2	ss.,brown, fine-grained; cross laminated (ripples) with thin laminae of dk. gray clay separating ss. laminae
20.0	26.3	3	lost core
26.3	27.2	4	shale, black, non calc.; bottom .6 ft.
27.2	29.0	5	clay, lt. gray, non calc., (appearance of underclay but root impressions not observed)
29.0	39.0	6	shale, med. gray (wet) non calc.; sand sized concretions of siderite 29.0-30.5, 32.2-32.6 and 35.6-37.0 ft; cross laminated lt. gray, ss. zones 33.7-34.2 ft.
39.0	44.0	7	lost core
44.0	44.7	8	ls.; med. gray; argillaceous, compact; no fossils observed
44.7	46.0	9	clay-shale, med. gray, non calc. abundant sand sized siderite concretions



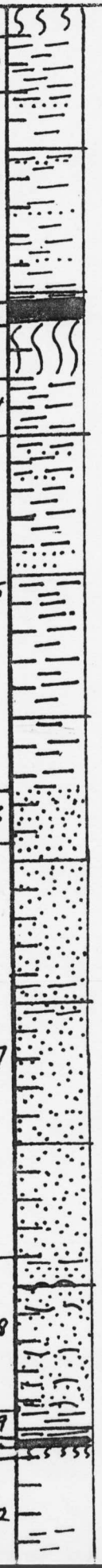
46.0	60.0	10	shale, dk. gray (dry) to black (wet), non calc., less than 5% lt. gray; parallel, discont. ss. laminae (starved ripples); poorly developed clay ironstone zone 57.7-58.0 ft.
60.0	64.3	11	lost core
64.3	65.2	12	shale, black; 2 ft, clay ironstone bed near middle; non calc.
65.2	67.0	13	ss., lt. gray; abundant root impressions; argillaceous
67.0	75.5	14	ss., fine to med. grain size (1/8 to 1/4 mm); cross-bedded near middle; asphalt stained
75.5	76.0	15	shale, lt. gray, sandy
76.0	81.1	16	shale, black, brittle; sparse lt. gray lenticular ss. laminae; sand sized siderite concretions in top 1 ft.; 1 ft. clay ironstone bed at 80.3 ft.
81.1	83.0	17	lost core
83.0	83.2	18	shale, black, non calc.
83.2	81.4	19	ls., dk. gray, argillaceous; fauna of brachiopods and gastropods, small spiny concavo-convex brachiopods Antiquatonia?; Ianthinopsis, also high-spired gastropods; crinoid columnals
84.4	85.4	20	clay med. gray, sandy; carbonized root impressions
85.4	96.5	21	ss., lt. gray; interlaminated with med. gray shale; ss. forms cross-bedded ripples but some distorted structure; filled burrows at 92.4 sand sized irregular siderite concretions in middle 2 ft.; pyrite; fragments of tan plant material 96.0 to 96.3 ft.
96.5	100.0	22	shale, med. gray, very sandy; cross laminated ss. in top half with mostly shale at bottom with sand sized siderite concretions
100.0	101.0	23	shale, lt. gray at top to black and brittle at bottom, non calc.; gradational with underlying coal
101.0	102.1	24	coal; pyrite lenses to .025 ft. dia.; a poor grade of coal
102.1	105.0	25	underclay, carbonized roots



105.0	106.0	26	shale, dk. gray, sandy; irregular sand sized patches of siderite concretions mixed with quartz sand; small (matchstick sized) areas of white, powdery non calc. mineral
106.0	110.2	27	shale, black; sparse pores and concretions of clay ironstone to .1 ft. thick
110.2	111.4	28	coal, pyritiferous; .1 ft. thick clay band .2 ft. from bottom
111.4	113.3	29	underclay, carbonized roots; sand sized siderite concretions in lt. gray quartz ss. cross-laminated in bottom 1 ft.
113.3	119.0	30	shale, med. gray; approx. 40% is laminae of lt. gray ripple sand in top 2 ft.; possible root impressions; approx. 10% laminae of ss. in bottom, sparse .1 ft. thick zone of clay ironstone and sand sized siderite concretions
119.0	126.9	31	lost core
126.9	127.4	32	shale, dk. gray; 10% of unit is randomly spaced lt. gray, cross-laminated ss. (ripples)
127.4	130.0	33	shale, med. gray; grades into cross laminated contorted ss. at bottom 2 ft.
130.0	136.3	34	lost core
136.3	150.5	35	ss., lt. gray; parallel laminae "bundles" of carbonaceous material at 137.4-138.6 ft., 139.8-139.9 ft., lost core 140.0-144.3 ft; cross laminated above 144.3 ft. but becoming homogenous below this depth
150.5	155.0	36	shale, med. to dk. gray and lt. gray, cross-bedded ss. incalated in beds to .1 ft. thick
155.0	158.4	37	ss., lt. gray, fine grained, micaceous; clasts of tan plant material and fusain to .1 ft. dia.; two dk. gray shale laminae .1 ft. thick near middle
158.4	158.8	38	congl. .2 ft. thick underlain and overlain by dk. gray shale interlaminated with lt. gray ripple marked ss; predom. angular clasts of tan plant material to .1 ft. long, smaller clasts of fusain; pyritiferous



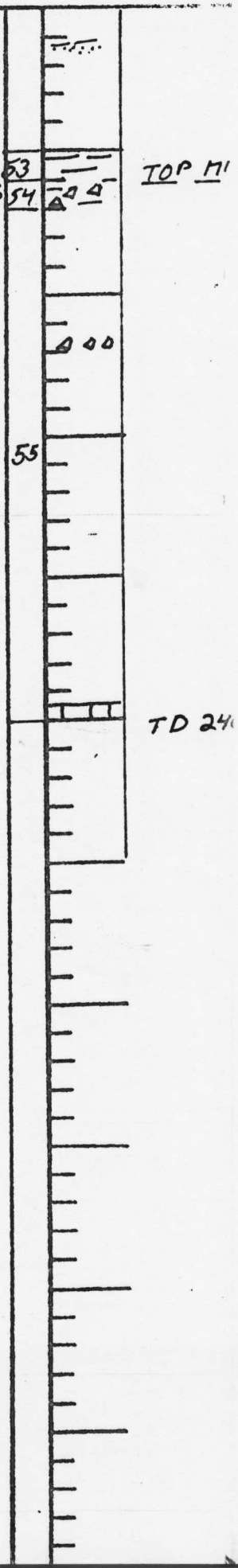
158.8	161.0	39	underclay, slickensided; carbonized root impressions	39
161.0	163.0	40	shale, med. gray; sand-sized siderite conc.	40
163.0	170.4	41	shale, dk. gray (dry) to black (wet); approx. 10% of unit is lt. gray ripples "starved" of ss; bottom .5 ft. homogenous shale	41
170.4	171.1	42	coal, pyritiferous	42
171.1	173.0	43	underclay, dk. gray; fossil root molds	43
173.0	175.0	44	shale, med. gray; sand sized siderite conc.	44
175.0	187.6	45	shale, dk. gray (dry) to black (wet); sandy at top becoming ripple laminated at 179.0 ft; .2 ft. thick clay ironstone bed at 179.2 ft. with matchstick sized holes filled with a powdery, white, non calc. mineral	45
187.6	189.8	46	ss., lt. gray, with dk. gray carbonaceous, irregular roots and possibly ss. filled vertical burrows	46
189.8	204.0	47	ss., fine grained, slight asphaltic stain 190.0-196.0 ft.; 2 "bundles" of irregular coaly laminae .1 ft. thick at 194.6-195.4 ft. cross-bedded with discontinuous irregular dk. shale laminae (paper thin) between foresets	47
204.0	209.5	48	ss., lt. gray; 10-20% dk. gray wavy shale laminae separating ripples; bottom 1 ft. predom. ss.	48
209.5	210.2	49	shale, black	49
210.2	210.6	50	coal, fractured; thickness estimated	50
210.6	211.0	51	underclay, dk. gray; carbonized roots	51
211.0	220.0	52	lost core; except for few pieces of black shale and ss.	52



220.0	221.0	53	shale, black
221.0	222.0	54	shale, black; few clasts to .05 ft. dia. of white chert; sparse, coarse, clear quartz grains
222.0	240.0	55	lost core except for few pieces of chert and lt. gray crystalline ls.

T.D. 240.0

Top Mississippian 221.0 ft.



FR & COMP

WILDCAT

STATE MISSOURI 9-2-106 MAP NO. S-T-R 33-33N-33W S

OPER MISSOURI GEOL SURVEY SPOT APP NW SW SW INIT

P O BOX 250, ROLLA, MO CO BARTON S

WELL 13 ERDA-TS ELEV 898 GR FIN

CONTR LAYNE WESTERN 1090' fsl, 15' fwl of Sec

FIELD WC

IP D&A

API 24-011-20015

SPUD 1-25-77, no surf csg

Show tar @ 25', 65', 190-200

RTD 240

D&A FIRST REPORTED AND COMPLETED JANUARY, 1977

GR SPL TOPS:

MISS CHERT	235 + 663
RTD	240 + 658

TD IN MISS

COMP ISSUED 9-12-77